

Remarks:

Reconsideration of the application is requested.

Claims 1-11 are now in the application. Claim 11 has been added. Claims 8-10 have been withdrawn from consideration.

In item 2 on page 2 of the above-identified Office action, claim 7 has been objected to because of an informality. More specifically, the Examiner has stated that "extend into said bonding leads" in claim 7 should be --extend said bonding leads--.

Applicants respectfully disagree. Claim 7 correctly recites that the groove (7, 8) can be extended into the bonding leads (5). Applicants do not understand why "extend into said bonding leads" needs to be changed to --extend said bonding leads--.

In item 4 on pages 2-3 of the above-identified Office action, claims 4 and 7 have been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner has stated that it cannot be determined what applicants regard as "the flowable material ... for forming structures on the support matrix" in claim 4.

Claim 4 clearly recites that the flowable material to be prevented from flowing is silicone, which is used to form structures on the support matrix.

The Examiner has also stated that it cannot be determined what applicants regard as "said groove is formed to extend into said bonding leads" in claim 7.

As discussed above, Claim 7 clearly recites that the groove (7, 8) can be extended into the bonding leads (5).

It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, second paragraph. Should the Examiner find any further objectionable items, counsel would appreciate a telephone call during which the matter may be resolved.

In item 6 on pages 3-5 of the above-mentioned Office action, claims 1-3 and 5-7 have been rejected as being anticipated by Wiech, Jr. (US Pat. No. 4,562,092) under 35 U.S.C. § 102(b).

In item 8 on page 5 of the above-mentioned Office action, claim 4 has been rejected as being unpatentable over Wiech, Jr. in view of Roberts et al. (US Pat. No. 4,599,636) under 35 U.S.C. § 103(a).

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claims 1 and 6 call for respectively, inter alia:

a groove formed therein along said edge of said bonding channel, said groove functioning as a barrier for preventing a flow of a flowable material from said bonding channel onto said frame and onto said conductor track structures.

Wiech, Jr. discloses a support matrix in Figs. 1 and 2.

According to the Examiner, these figures show a bonding channel 30. However, a bonding channel is an opening in a frame that allows access to bonding leads or to wiring from a side remote from a semiconductor chip (see page 2, lines 16-19 of the specification of the instant application). It is questionable if the recess 30 of Fig. 1 of Wiech, Jr. is a bonding channel because the most obvious purpose of the recess 30 is to receive a semiconductor chip 2. Although there are bond connections 4A and 3A on the upper side of the semiconductor chip 2 within the recessed surface portion, the height of these bond contacts is above the recess.

Furthermore, according to column 5, lines 14 to 17 of Wiech,

Jr., the wire 8 contains a conductive material 22 which forms a power connection to the chip 2. From Applicants' view, the recess 8, rather than the large recess 30, forms the bonding channel.

The Examiner has also stated that Wiech, Jr. discloses a groove 10 functioning as a barrier for preventing a flow of a flowable material from the bonding channel onto conductor track structures 18. Although there are conductors 18 to 21 allocated at a larger distance from recess 30 (or recess 8) than grooves 10 to 14, Applicants believe that Wiech, Jr. does not disclose that the grooves serve as a barrier for flowable material. In contrast, according to column 5, lines 30 to 35 of Wiech, Jr., the grooves 10 to 14 serve to receive a bonding tool that welds a wire 3 to a conductive material 24 at the bottom of the grooves. The conductive material 24 at the bottom of the grooves 10 to 14 is illustrated in Fig. 1 of Wiech, Jr. It seems that the conductive material 24 forms conductors or conductor track structures of the same kind as the conductor 18 referred to by the Examiner. Furthermore, in column 5, lines 41 to 45 of Wiech, Jr., it is disclosed that the grooves serve to obviate the need for insulating the conductors 24 within the grooves when positioning further conductors like bonding wires 3 crossing the grooves. The grooves receiving the conductors 24 prevent electrical short circuit of the conductors 24 with wires 3. Regarding the

purpose of grooves 10 to 40, the Examiner has referred to column 10, lines 42 to 46 of Wiech, Jr., where actually only a spraying of epoxy resin onto the semiconductor chip 2 is disclosed. If the grooves 10 to 14 would serve to prevent an epoxy resin flow, they would not contain the conductors 24 because contact of epoxy resin with the conductor 24 would be facilitated rather than prevented.

The Examiner further stated that the bond wires 3, 4 in Wiech, Jr. are disposed in the bonding channel. If the recess 30 is to be regarded as the bonding channel, the bonding wires 3, 4 are disposed above the bonding channel rather than therein. The same is true if the recess 8 is regarded as the bonding channel.

Clearly, Wiech, Jr. does not disclose "a groove formed therein along said edge of said bonding channel, said groove functioning as a barrier for preventing a flow of a flowable material from said bonding channel onto said frame and onto said conductor track structures", as recited in claims 1 and 6 of the instant application.

Claims 1 and 6 are, therefore, believed to be patentable over the art and since all of the dependent claims are dependent on claims 1 or 6, they are believed to be patentable as well.

Claim 11 has been added to recite a parting agent for repelling a flowable material. A parting agent increases the surface tension of the flowable material in contact with the parting agent and thereby obviating the need to provide a groove. Providing a groove or a parting agent are alternatives to each other. Of course, a parting agent can also be disposed in the groove, as recited in claim 5 of the instant application. Support for claim 11 is found on page 12, lines 7-12 of the specification of the instant application.

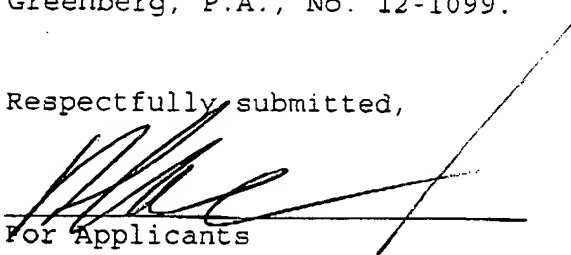
Clearly, none of the references "a barrier formed along said edge, said barrier having a parting agent disposed thereon for repelling a flowable material from said bonding channel onto said frame and onto said conductor track structure", as recited in added new claim 11. Claim 11 is therefore, believed to be patentable over the art.

In view of the foregoing, reconsideration and allowance of claims 1-11 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate a telephone call so that, if possible, patentable language can be worked out.

Please charge any fees which might be due with respect to  
Sections 1.16 and 1.17 to the Deposit Account of Lerner and  
Greenberg, P.A., No. 12-1099.

Respectfully submitted,



For Applicants

YHC:cgm

September 16, 2002

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